

SECRET

1. An apparatus, comprising:

a graphics context manager to store in a first memory area and restore from the first memory area information describing a first rendering context associated with the first independent image, the graphics context manager to store in a second memory area and restore from the second memory area information describing a second rendering context associated with the second independent image.

2. The apparatus of claim 1, wherein the graphics context manager further comprises:

a plurality of memory areas, each memory area to store a rendering context associated with the instructions from a particular graphics application, the plurality of memory areas includes the first memory area and the second memory area; and

Application

3. The apparatus of claim 2, wherein the graphics context manager further comprises:

a third register to track which memory area in the plurality of memory areas contains the rendering context information to be supplied to the graphics-rendering engine.

4. The apparatus of claim 1, wherein the first memory area is located on the same chip containing the graphics-rendering engine.

5. The apparatus of claim 2, wherein the first context identification register contains a field to assist in switching the first rendering context associated with a two dimensional image to the second rendering context associated with a three dimensional image.

6. The apparatus of claim 2, wherein the first context identification register contains a field to assist in switching the first rendering context associated with a textured-map image to the second rendering context associated with a non-texture-mapped image.

7. The apparatus of claim 2, further comprises:

the first memory area to contain instructions for the two or more independent images in a first instruction stream.

8. The apparatus of claim 2, further comprises:

the first memory area to contain instructions for one or more independent images in a first instruction stream, and the first memory area to contain instructions for one or more independent images in a second instruction stream.

9. The apparatus of claim 1, further comprises:

One or more instruction transports to deliver instructions for the two or more independent images to the graphics-rendering engine, the one or more instruction transports including a first instruction transport.

10. The apparatus of claim 9, wherein each instruction transport is associated with a particular display device.

11. The apparatus of claim 9, wherein the first instruction transport comprises:

an instruction memory area;

a first register to define a start and an end to the instruction memory area; and

a memory access engine to fetch and deliver the instructions from the instruction memory area to the graphics-rendering engine.

12. The apparatus of claim 9, wherein the instruction transport further comprises:

a third memory area to store an independent sequence of instructions that can be invoked from an instruction stream.

13. The apparatus of claim 1, further comprises:

a time allocator to arbitrate the use of the graphics-rendering engine between the two or more independent images.

14. The apparatus of claim 13, wherein the time allocator comprises:

a plurality of registers including a first register, the first register having a plurality of fields, a first field to determine whether the first register participates in an arbitration process to use the graphics rendering engine, a second field to point to a memory location containing instructions from a first instruction stream.

15. The apparatus of claim 13, wherein the time allocator further comprising:

A first module to establish a programmable elapsed period of time to use the graphics-rendering engine, the period of time is defined by a programmable number of unit time periods, where each unit time period is defined by a programmable number of real-time time quanta.

16. The apparatus of claim 14, wherein the time allocator further comprises:

a first module to direct the graphics-rendering engine to process instructions associated with a first independent image, the instructions stored in a first memory area, the first memory area having an address defined by information contained within the plurality of the fields.

17. A method, comprising:

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21. A system, comprising:

a central processing unit; and

a graphics device, the central processing unit coupled to the graphics device, the graphics device containing a graphics-rendering engine to concurrently render two or more independent images for display on multiple display devices, and a graphics context manager to store in a first memory area and restore from the first memory area information describing a first rendering context associated with the first independent image, the graphics context manager to store in a second memory area and restore from the second memory area information describing a second rendering context associated with the second independent image.

22. The system of claim 21, wherein the graphics device further comprises:

a time allocator to arbitrate the use of the graphics-rendering engine between the two or more independent images.

23. The system of claim 21, wherein the graphics device further comprises:

an instruction transport to deliver instructions for the independent images to the graphics-rendering engine as controlled by the time allocator.
